Tai Chi reduces pain and improves physical function for people with knee OA

Synopsis

Summary of: Wang C, Schmid CH, Hibberd PL, Kalish P, Roubenoff R, Rones R, et al (2009) Tai Chi is effective in treating knee osteoarthritis: a randomized controlled trial. *Arthritis Care & Research* 61: 1545–1553 [Prepared by Kåre Birger Hagen and Margreth Grotle, CAP Editors.]

Question: What is the effect of Tai Chi for people with osteoarthritis (OA) of the knee? ***Design***: Randomised, controlled trial with concealed allocation, blinded outcome assessment and intention-to-treat analysis. ***Setting***: An urban tertiary academic hospital in the USA. ***Participants***: Men and women ≥ 55 years, with body mass index ≤ 40 kg/m^2, Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) pain subscale score > 40mm, knee OA as defined by the American College of Rheumatology, and grade 2, 3, or 4 radiographic severity on the Kellgren-Lawrence classification. Prior Tai Chi training, recent intra-articular steroid or hyaluronate injections, and reconstructive surgery on the knee were exclusion criteria. Randomisation of 40 participants allotted 20 to the Tai Chi group and 20 to an attention control group. ***Interventions***: Both groups participated in 60-minute sessions twice weekly for 12 weeks. The Tai Chi sessions included self-massage, movement, breathing technique, and relaxation. The participants were instructed to practise Tai Chi at least 20 minutes per day at home in the intervention period, and to continue this practice after the intervention period. The control group sessions included 40 minutes of didactic lessons with nutrition and medical information and 20 minutes of stretching exercises. Participants were instructed to practise at least 20 minutes of stretching exercises per day at home. ***Outcome measures***: The primary outcome was change in the WOMAC pain subscale (range 0–500) at 12 weeks follow up. Secondary outcomes were WOMAC function subscale (0–1700), WOMAC stiffness subscale (0–200) assessed at 12, 24, and 48 weeks follow-up, and weekly WOMAC pain scores during the 12-week intervention period and at 24, and 48 weeks follow-up. Additional measures included patient and physician global assessment, physical performance tests, and psychological measures of health-related quality of life, depression, and self-efficacy. ***Results***: All 40 participants completed the study. At 12 weeks, the mean reduction in WOMAC pain rating in the Tai Chi group was 119 mm greater than the control group (95% CI 54 to 184). Tai Chi also significantly improved WOMAC function, by 325 mm (95% CI 135 to 514), but not WOMAC stiffness. Other significantly better outcomes at 12 weeks were the global assessments, chair stand time, and most psychological measures. The benefits in WOMAC pain and function persisted to 24 weeks, and the benefits in psychological measures persisted to 48 weeks. ***Conclusion***: For people with knee OA, Tai Chi reduces pain and improves physical and psychological function.

Commentary

Osteoarthritis (OA) refers to a clinical syndrome of joint pain accompanied by varying degrees of functional disability and impaired quality of life. The prevalence increases with age, and OA is one of the leading causes of pain and disability for the adult population worldwide (NICE 2008).

Tai Chi is a form of exercise that focuses on controlled movements combined with diaphragmatic breathing and relaxation while maintaining good posture (Hall et al 2009). This randomised controlled trial included modified Yang-style Tai Chi so as to be suitable for persons with knee pain. Previous studies of Tai Chi for this patient group have not shown convincing evidence, as the quality and quantity of the studies have been limited (Lee et al 2008, Hall et al 2009).

The trial is very well designed and reported; impressively, there is no attrition, high intervention attendance, and a long follow-up. The authors acknowledge that the trial was underpowered with only 40 participants, which resulted in fairly imprecise effect sizes. The trial showed promising results with benefits in physical function, pain, and psychological measures. As expected, the effects on pain and function started declining when treatment sessions ended. However, benefits in psychological measures persisted as far as 48 weeks. The study should be replicated on a larger scale in order to confirm the results.

Current guidelines consider non-pharmacological treatment modalities as the cornerstones in modern management of OA with information, exercise, and weight loss as core treatments (NICE 2008). Although this trial involved instruction by a Tai Chi master and selected participants, the study results might encourage physiotherapists to consider Tai Chi as an alternative, or additional, form of exercise for persons with knee OA.

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References

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